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5 PALO ALTO SQUARE			PAPER NUMBER	
PALO ALTO, CA 94306			2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/994,260

Applicant(s)

ARVELO, ELADIO C.

Examiner

Cynthia L Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 11/26/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/26/2001</u> .  | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 22 recites the limitation "said plurality of counters." There is insufficient antecedent basis for this limitation in the claim. Based on the disclosure and the wording of the claim, it is suggested this be changed to "said plurality of registers."

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-4, 11, 16-17, and 24 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Chang (6754506).

Regarding claim 1, Chang discloses a method comprising increasing a power level of a wireless transmission (figure 3, element 308a) if a number of frame errors in a short observation window (reporting period, column 4, lines 13-16) exceeds a first threshold (column 4, lines 32-37, also, "target," figure 3, element 306). Chang also discloses decreasing the power level of the wireless transmission (figure 3, element 308b) if a number of frame errors in a long observation window (reporting period,

column 4, lines 13-16) falls below a second threshold (column 4, lines 37-39, also "target," figure 3, element 306).

Regarding claim 2, Chang discloses increasing the power level of the wireless transmission (figure 3, element 308a) if the number of frame errors in the long observation window (reporting period, column 4, lines 13-16) exceeds a third threshold (column 4, lines 32-37, also, "target," figure 3, element 306).

Regarding claim 3, Chang discloses counting the number of frame errors (column 4, lines 8-12) during the short observation window (reporting period, column 4, lines 13-16) and comparing the number of packet errors during the short observation window to the first threshold (column 4, lines 32-34, also, "target," figure 3, element 306).

Regarding claim 4, Chang discloses counting the number of frame errors (column 4, lines 8-12) in the long observation window (reporting period, column 4, lines 13-16) and comparing the number of packet errors during the long observation window to the second threshold (column 4, lines 32-34, also, "target," figure 3, element 306).

Regarding claim 11, Chang discloses in column 3, line 53, a 1 percent frame error rate.

Regarding claim 16, see the above rejection for claim 1. Chang further discloses a counter to count frame errors in a wireless transmission at column 4, line 21 ("number of errors detected," a counter is necessarily implied). Counting a number of frame errors in a short observation window is disclosed in column 4, lines 13-16 ("reporting period"). Counting a number of frame errors in a long observation window is disclosed

in column 4, lines 13-16 ("reporting period"). A comparator to compare the number of frame errors in the short observation window to a first threshold and to compare the number of packet errors in the long observation window to the second threshold is disclosed in figure 3, element 306, and column 4, lines 32-35. A controller to increase a power level of the wireless transmission if the number of packets in the short observation window exceeds the first threshold is disclosed in figure 3, element 308a. A controller to decrease the power level of a wireless transmission if the number of packet errors in the long observation window falls below the second threshold is disclosed in figure 3, element 308b.

Regarding claim 17, see the above rejection of claim 2. The comparator further comparing the number of packet errors in the long observation window to a third threshold is disclosed in column 4, lines 32-35 of Chang. The controller increasing the power level of the wireless transmission if the number of errors in the long observation window exceeds a third threshold is disclosed in figure 3, element 308a.

Regarding claim 24, Chang discloses a packet counter to count a number of packets in the wireless transmission (column 4, lines 19-20) and provide the number of packets to the controller, said controller to decrease the power level of the wireless transmission (figure 3, element 308b) based on the long observation window only after the number of packets fills the long observation window (column 4, lines 28-29, "the transmitter receives a link quality measure for the previous reporting period" implies that the measurement is given after the reporting period has elapsed, i.e. after the long observation window is filled).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 5-9 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of Van Heeswyk (6765883), in further view of Honkanen (6765883).

Regarding claim 5, the method of claim 1 is disclosed in Chang. Claim 5 further limits the method of claim 1 by specifying that it is open loop, and uses CRC's and NACK's to count the packet errors, which is missing from Chang. However, increasing and/or decreasing the power level comprising an open loop power control method is disclosed in Van Heeswyk at column 9, lines 33-39. Receiving a plurality of packets comprising the wireless transmission from a remote source and performing a CRC on each of the plurality of packets is disclosed as part of the Bluetooth standard in the specification on page 9, lines 15-16. Sending a NACK message to the remote source for each CRC failure is disclosed as part of the Bluetooth standard in the specification

on page 9, line 16 thru page 10, line 1. The remote source counting the NACK messages corresponding to the number of packet errors in the short observation window and a number of packet errors in the long observation window is disclosed in Chang in column 4, lines 19-20. The remote source increasing and/or decreasing the power level accordingly is disclosed in Van Heeswyk at column 9, lines 38-39. Monitoring error rates in a Bluetooth wireless system is disclosed in Honkanen at column 1, lines 8-12, and column 6, lines 39-43. In view of this disclosure, it would have been obvious to one skilled in the art at the time of the invention to use the claimed method of open loop power control based on error rates in a Bluetooth-type system. The motivation would be to allow the remote source to unilaterally control its power level, and to have the system operating on the standardized, recognized Bluetooth protocol.

Regarding claims 6 and 18, the methods of claim 1 and 16 are disclosed in Chang. Claims 6 and 18 further disclose open loop power control, and using CRC's and NACK's to count the packet errors, which is missing from Chang. However, increasing and/or decreasing the power level comprising an open loop power control method is disclosed in Van Heeswyk at column 9, lines 33-39. Sending a plurality of packets comprising the wireless transmission to a remote source and performing a CRC on each of the plurality of packets is disclosed as part of the Bluetooth standard in the specification on page 9, lines 15-16. Receiving a NACK message to the remote source for each CRC failure is disclosed as part of the Bluetooth standard in the specification on page 9, line 16 thru page 10, line 1. Chang discloses counting the NACK messages

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corresponding to the number of packet errors in the short observation window (column 4, lines 13-16) and increasing the power level accordingly (figure 3, element 308a).

Chang also discloses counting the NACK messages corresponding to the number of packet errors in the long observation window (column 4, lines 13-16) and decreasing the power level accordingly (figure 3, element 308b). Monitoring error rates in a Bluetooth wireless system is disclosed in Honkanen at column 1, lines 8-12, and column 6, lines 39-43. In view of this disclosure, it would have been obvious to one skilled in the art at the time of the invention to use the claimed method of open loop power control using error rates in a Bluetooth-type system. The motivation would be to allow the transmitter to control its transmission power and to have the system operate in the standardized, recognized Bluetooth protocol.

Regarding claim 7 and 19, the methods of claim 1 and 16 are disclosed in Chang. Claims 7 and 19 further disclose closed loop power control, and using CRC's and NACK's to count the packet errors, which is missing from Chang. However, increasing and/or decreasing the power level comprising a closed loop power control method is disclosed in Van Heeswyk at column 9, lines 40-52. Receiving a plurality of packets comprising the wireless transmission from a remote source and performing a CRC on each of the plurality of packets is disclosed as part of the Bluetooth standard in the specification on page 9, lines 15-16. Counting the CRC failures in the short observation window (column 4, lines 13-16) and a long observation window (column 4, lines 13-16) is disclosed in Chang. Sending an instruction to the remote source to increase or decrease the power levels accordingly is disclosed in Van Heeswyk at



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column 9, lines 43-47. Monitoring error rates in a Bluetooth wireless system is disclosed in Honkanen at column 1, lines 8-12, and column 6, lines 39-43. In view of this disclosure, it would have been obvious to one skilled in the art at the time of the invention to use the claimed method of closed loop power control using error rates in a Bluetooth-type system. The motivation would be to allow the transmitter to control the transmission power of the remote sources, and to have the method use the standardized, recognized Bluetooth protocol.

Claims 8 and 20 further limit the methods of claims 7 and 19 by sending the instruction to the remote source to increase the power level if the number of CRC failures in the long observation window exceeds a third threshold. Chang discloses increasing the power level of the wireless transmission (figure 3, element 308a) if the number of packet errors in the long observation window (column 4, lines 13-16) exceeds a third threshold (column 4, lines 32-37). In view of this disclosure, it would have been obvious to one skilled in the art to use a third threshold. The motivation would be to fine-tune the power control of the system.

Claims 9 and 21 further limit the methods of claims 7 and 19 by sending LMP instructions to increase and decrease the power level, which is missing from Chang. However, in the instant specification at page 10, lines 6-7, LMP instructions are disclosed to be part of the Bluetooth specification, and as being commonly used for RSSI-based loop power control. In view of this disclosure, it would have been obvious to one skilled in the art to send LMP instructions to increase or decrease the power. The motivation would be to implement the claimed method in a Bluetooth-type network.

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7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of Tabet (5983183). The method of claim 1 is disclosed in Chang. Claim 10 further discloses a wireless transmission generated by a transmitter located in close proximity to a receiver, said receiver to simultaneously receive a second wireless transmission, said first wireless transmission to create an interference signal in the second wireless transmission in proportion to the power level of the first wireless transmission. It is obvious that some sort of interference will occur in a wireless transmission. Increasing and/or decreasing the power level comprising maintaining a target average packet error rate using a lowest average power level of the first wireless transmission is disclosed in Tabet in figure3, element 208. The lowest average power level is an indicator of the line noise level, which is also an indicator of the average packet error rate. Since the lowest average power level and the average packet error rate are related in this way, it makes sense to use the readings of one to control the other. It would have been obvious to one skilled in the art at the time of the invention to use the lowest average power level to maintain a target packet error rate. The motivation would be to use the power readings to modulate the link quality.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view Tiedemann (5604730). The method of claim 1 is disclosed in Chang. Claim 12 further discloses a 30dB range for the wireless transmission, which is missing from Chang. However, there is no basis given in the specification for the choice of a 30dB limitation. It is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a

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showing of criticality in a particular recited value. The burden of showing criticality is on Applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937), Marconi Wireless Telegraph Co. v. US, 320 U.S.1, 57 USPQ 471 (1943). Claim 12 also discloses 2dB steps for adjusting the power level, which is missing from Chang. However, Tiedemann discloses adjusting the power level of a wireless transmission in 2dB steps at column 10, line 10-11. It would have been obvious to one skilled in the art at the time of the invention to use 2dB steps to adjust the power level, and to have a 30dB range for the transmission. The motivation would be to have fine control over the power level.

9. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang. The methods of claims 1 and 2 are disclosed in Chang. Claim 13 further discloses a short observation window length of 35 packets, a long observation window length of 135 packets, a first threshold of 1 packet error, and a second threshold of 2 packet errors, which is missing from Chang. Claim 14 discloses a third threshold of 3 packet errors, which is also missing from Chang. However, there is no basis given in the specification for the choice of these numbers. It is generally considered to be within the ordinary skill in the art to adjust, vary, select or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on Applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937), Marconi Wireless Telegraph Co. v. US, 320 U.S.1, 57 USPQ 471 (1943). It would have been obvious to one skilled in the art at the time of the invention to experiment with different values.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of Honkanen (6760317). The method of claim 1 is disclosed in Chang. Claim 15 further discloses the wireless transmission comprising a Bluetooth network, which is missing from Chang. However, Honkanen discloses monitoring error rates in a Bluetooth network at column 1, lines 8-12, and column 6, lines 39-43. It would have been obvious to one skilled in the art at the time of the invention to use the claimed method of power control on a Bluetooth data link. The motivation would be to be able to control power based on error rates in a Bluetooth network.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of Batchner (6775764). Claim 16 is disclosed in Chang. Claim 23 further discloses a plurality of registers to programmably store the first threshold and the second threshold, and to provide the first threshold and the second threshold to the comparator, which is missing from Chang. However, using registers to store values is disclosed in Batchner, column 7, lines 12-13. It would have been obvious to one skilled in the art at the time of the invention to use registers to store the threshold values. The motivation would be to have a programmable method of storing the threshold values.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang in view of Uhlik (6760599). Chang discloses a method comprising increasing a power level of a wireless transmission (figure 3, element 308a) if a number of packet errors in a short observation window (column 4, lines 13-16) exceeds a first threshold (column 4, lines 32-37). Chang also discloses decreasing the power level of the wireless transmission (figure 3, element 308b) if a number of errors in a long observation window

(column 4, lines 13-16) falls below a second threshold (column 4, lines 37-39). Claim 25 further discloses a machine readable medium having stored thereon machine readable instructions to implement this method, which is missing from Chang. However, using such a machine readable medium and machine readable instructions to carry out a similar method is disclosed in Uhlik at column 19, lines 12-27. It would have been obvious to one skilled in the art at the time of the invention to store instructions for this method on a machine readable medium. The motivation would be to have a computer carry out the steps of the claimed method.

Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L Davis whose telephone number is 703-340-4078. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CLD  
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